526 Rec'd PCT/PTO 26 JAN 2001

FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: **PLS-0012**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): **09/744600**

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR99/01830	**July 26, 1999**	**July 28, 1998**

TITLE OF INVENTION

SINGLE-PIECE PART FOR MAKING A CABLE ANCHORING JAW AND METHOD FOR MAKING SUCH A JAW

APPLICANT(S) FOR DO/EO/US

JEAN-CLAUDE PERCHERON, ET AL.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
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Jennifer Matson

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PCTUS1/REV03

500 Rec'd PCT/PTO 2 6 JAN 2001

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR) 09/744600	INTERNATIONAL APPLICATION NO. PCT/FR99/01830	ATTORNEY'S DOCKET NUMBER PLS-0012

21. The following fees are submitted:.

		CALCULATIONS PTO USE ONLY
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :		
☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO	**$1,000.00**	
☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO	**$860.00**	
☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	**$710.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)	**$690.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)	**$100.00**	
ENTER APPROPRIATE BASIC FEE AMOUNT =		**$860.00**
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).		**$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	8 - 20 =	0	x $18.00	**$0.00**
Independent claims	3 - 3 =	0	x $80.00	**$0.00**
Multiple Dependent Claims **(check if applicable)**.			☐	**$0.00**

TOTAL OF ABOVE CALCULATIONS =		**$860.00**
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable)**.	☐	**$0.00**
SUBTOTAL =		**$860.00**
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +		**$0.00**
TOTAL NATIONAL FEE =		**$860.00**
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**	☐	**$0.00**
TOTAL FEES ENCLOSED =		**$860.00**
	Amount to be: refunded	$
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☒ A check in the amount of **$860.00** to cover the above fees is enclosed.

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NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Daniel F. Drexler
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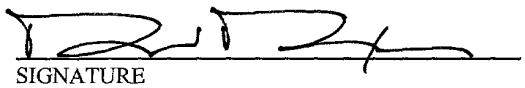

SIGNATURE

Daniel F. Drexler
NAME

P47,535
REGISTRATION NUMBER

January 26, 2001
DATE

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: JEAN-CLAUDE PERCHERON, ET AL

FOR: SINGLE-PIECE PART FOR MAKING A CABLE ANCHORING JAW AND METHOD FOR MAKING SUCH A JAW

PRELIMINARY AMENDMENT

"Express Mail" mailing label number EL732724906US
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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.
Jennifer Matson
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Jennifer Matson
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Box Patent Application
The Assistant Commissioner of
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Washington, DC 02031

Sir:

Prior to the Examiner acting in the above-referenced application, please preliminary amend the specification and claims as follows:

IN THE SPECIFICATION

Page 1, between lines 2 and 3, please insert --TECHNICAL FIELD OF THE INVENTION--.

Page 1, between lines 5 and 6, please insert --DESCRIPTION OF THE RELATED ART--.

Page 3, between lines 9 and 10, please insert --SUMMARY OF THE INVENTION--.

Page 4, between lines 25 and 26, please insert --BRIEF DESCRIPTION OF THE DRAWINGS--.

Page 4, between lines 34 and 35, please insert --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT--.

Please add page 10 to include the following ABSTRACT OF THE DISCLOSURE: --

ABSTRACT OF THE DISCLOSURE

The invention concerns a single-piece part for producing a cable anchoring jaw. The single-piece part includes several angular portions arranged about a generally cylindrical duct, assembled by clamps adjacent to the duct. Each clamp is located at the bottom of one particular radial slot extending between two portions from the part periphery. Each clamp has towards its own particular slot a surface whereof a part at least is inclined relative to the direction perpendicular to the slot radial plane, such that the clamp radial thickness has a minimum in a specific position along the direction, thereby ensuring the position where the clamp will be broken to obtain the jaw wedges from the part portions, which enables to better control for clamping the cable strand in the jaw.--

IN THE CLAIMS:

Please amend the following claims.

Claim 2, line 2, please delete "(27)" and "(25)".

Please rewrite the following claims in amended form.

Claim 1. (Amended) A single-piece component [(20)] for making a cable anchoring jaw [(10)], comprising several angular segments [(22)] disposed around a bore [(5)] having a generally cylindrical shape, joined by bridges [(27)] adjacent to [said] the bore, each bridge being located at [the] a bottom of a respective radial slot [(25)] extending between two segments from [the] a periphery of the single-piece component, [characterized in that] wherein each bridge presents, towards [its] the respective slot, a surface having at least a portion inclined relative to [the] a direction [(X)] perpendicular to [the] a radial plane of [said] the slot so that [the] a radial thickness of [said] the bridge [(27)] is at a minimum at a determined position along [said] the direction [(X)].

Claim 3. (Amended) A method of manufacturing a cable anchoring jaw [(10)] formed of an assembly of a number N of wedges [(12)], comprising [the steps of]:

[-] forming a bore [(5)] of a generally cylindrical shape in a single-piece component;

[-] performing N cuts in the single-piece component from its periphery along radial planes to form N radial slots [(25)] delimiting N angular segments [(22)] of the single-piece component, at least N-1 of the cuts being interrupted before reaching the bore [(5)] in order to leave bridges [(27)] joining the segments at [the] a bottom of [the] corresponding slots;

[-] subjecting the single-piece component [(20)] thus obtained to a hardening treatment; and

[-] forcing apart the N [sectors] segments in order to break the bridges, each wedge [(12)] of the jaw being obtained from one of the segments [(22)],

[characterized in that said] wherein the interrupted cuts are performed so as to impart to each bridge [(27)] a surface, directed towards the corresponding slot, of which at least [part] a portion is inclined relative to [the] a direction [(X)] perpendicular to [the] a radial plane of [said] the slot so that [said] the bridge breaks at a determined position along [said] the direction [(X)].

Claim 4. (Amended) A method as claimed in claim 3, wherein said N-1 cuts are made by [means of] at least one [or more] tool[s (30)] having teeth [(31)] with a substantially V-shaped profile perpendicular to [the] a cutting plane.

Claim 5. (Amended) A method as claimed in claim 3 [or 4], further comprising [the step of] tapping the [generally cylindrical] bore [(5)] to form transverse striations [(11)] on an internal face of each wedge [(12)].

Claim 6. (Amended) A method as claimed in [any one of] claim[s] 3 [to 5], further comprising [the steps of]:

forming an annular groove [(14)] on the periphery of the single-piece component [(20)]; and

placing an assembling ring [(13)] in [said] the annular groove prior to the hardening treatment.

Claim 7. (Amended) A cable anchoring jaw [(10) formed by assembling several wedges (12) obtained by a method as claimed in any one of claims 3 to 6], comprising an assembly of several wedges arranged in angular sectors around an axial bore, wherein intervals are provided between the wedges, each interval substantially extending in a radial plane relative to the bore, and wherein at least one of the wedges situated on both sides of one of the intervals has a longitudinal ledge adjacent to the bore and projecting into the interval, the ledge having a inclined surface relative to a direction perpendicular to the redial plane of the slot.

Please enter the following new claim.

Claim 8. (Newly Added) A method as claimed in claim 5, further comprising:

forming an annular groove on the periphery of the single-piece component; and

placing an assembling ring in the annular groove prior to the hardening treatment.

REMARKS

Applicants request entry of the above-identified amendments which, in part, reduce multiple dependencies and conform the claims and specification to U.S. practice. No new matter is being introduced by this Amendment as antecedent support is set forth in the specification and the original claims.

Prosecution on the merits is respectfully requested.

If there are any charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

JEAN-CLAUDE PERCHERON, ET AL

CANTOR COLBURN LLP
Applicants' Attorney

By: _____
Daniel F. Drexler
Registration No. P47,535
Customer No. 23413

Date: January 26, 2001

SINGLE-PIECE COMPONENT FOR MAKING A CABLE ANCHORING JAW AND MANUFACTURING METHOD OF SUCH A JAW

The present invention relates to the jaws used to anchor cables on anchoring blocks such as pre-stressing cables used in civil engineering applications, bridge stay cables, ...

These jaws are usually of a frusto-conical shape, and they have an axial bore of a generally cylindrical shape which receives the cable tendon to be anchored. They co-operate with seats having at least one matching frusto-conical portion, those seats being cut through the anchoring blocks, with the cable tendons to be anchored extending therethrough.

The jaws in question consist of several (usually two, three or four) identical elements – that will be referred to as "wedges" hereafter – coming from an original component, delimited on the outside by a frusto-conical surface and having a cylindrical axial bore extending therethrough, the internal face of which is advantageously striated. The original component is divided into wedges by making saw cuts in two, three or four (or more) radial half-planes.

The wedges produced by sawing are subjected to a heat treatment to provide superficial hardening. An annular ring made from steel is located in a circular groove machined on the external frusto-conical surface of the original component in the vicinity of its wider base so as to assemble the wedges of the jaw.

French patent 2 586 076 describes an anchoring jaw comprising wedges which all come from the same original component. The saw cuts intended to split this component up into wedges are deliberately left unfinished so as to leave bridges of a slight thickness between contiguous wedges along the central bore of the component.

This method of making the jaw is suitable for mass production. Even though the cuts forming the wedges are not strictly regular and identical, it is ensured that their assembling as a jaw does not cause, between the wedges, non-complementary bearing surfaces which could deform the cylindrical bore in which the tendon is gripped. The manufacturing tolerances and quality controls are therefore less strict than in methods where the wedges are fully cut out and stored in bulk between the cutting and assembly processes.

Figure 1 shows an end view of the single-piece component 1 from which a jaw with three wedges 9 is made according to French patent

2 586 076. The bridges 7, adjacent to the cylindrical bore 3, are located at the bottom of radial slots 6 resulting from saw cuts made from the periphery of the piece 1 across its entire length. The bridges are of small thickness (less than 1 mm), their main function being to hold the wedges 9 together until they are broken. The usual method used to make this break is to drive a separator member into the bore 3, the separated wedges being subsequently held by the assembling ring.

A problem encountered with jaws of this type is that the bridge rupturing is not well controlled. The bottom of the slot 6 is flat, so that the rupture may occur at any point along the thickness of the slot (direction perpendicular to the radial plane). The rupture may be of a zigzag pattern due to the transverse striations 4 formed by tapping in the wall of the cylindrical bore 3. Furthermore, the bridge 7 often breaks at several points.

These problems can be detrimental to the quality of the anchoring. If a piece of bridge remains on the radial face of a wedge at only certain points of the jaw length, this may cause the cylindrical bore to deform because of the imperfect contact bearing between adjacent wedges, which will affect the uniformity of the clamping action. Pieces of bridge may also be deformed or separated from the wedge under the effect of the stress applied during the anchoring process, in which case these pieces are likely to come in an undesirable manner between the wedges, between the wedges and the tendon or between the wedges and the frusto-conical orifice of the anchoring block.

It should be pointed out that for the tendon to be clamped uniformly, the diameter of its cylindrical bore is designed to be slightly smaller than that of the tendon to be anchored. Accordingly, once the striations of the jaw have penetrated the metal of the tendon to a certain degree and there has been a slight radial contraction in the tendon under the effect of the clamping stress, the bore approximately resumes its cylindrical shape so that the stress is transmitted uniformly onto the perimeter of the tendon.

The saw cuts made between the wedges leave between them the spaces necessary to transmit the clamping stress. If these spaces were not there, the radial clamping action exerted at the frusto-conical interface would result in a mutual clamping of the wedges along the radial planes, rather than the transmission of the clamping action to the tendon.

During the anchoring process, it should be avoided that some of these spaces reduce in size whilst others become larger. In the worst scenario for a

jaw with N wedges, this would result in losing N–1 spaces and creating one space of a thickness N times greater. This would also lead to ineffective clamping of the tendon, which may cause slipping. In the typical situation where N = 3 and where the cuts leave spaces of 1.5 mm between the wedges, one could end up with one space of 4.5 mm, which would be seriously detrimental to the anchoring of a conventional seven-wire strand whose peripheral wires have a diameter of 5 mm.

The fact that rupturing of the bridges is not very well controlled does not permit to eliminate this disadvantage of the conventional jaws.

An object of the present invention is to improve jaws of the type described in French patent 2 586 076 by reducing the impact of the above-mentioned problems.

Accordingly, the invention proposes single-piece component for making a cable anchoring jaw, comprising several angular segments disposed around a bore having a generally cylindrical shape, joined by bridges adjacent to said bore, each bridge being located at the bottom of a respective radial slot extending between two segments from the periphery of the component. According to the invention, each bridge presents, towards its respective slot, a surface having at least a portion inclined relative to the direction perpendicular to the radial plane of said slot so that the radial thickness of said bridge is at a minimum at a determined position along said direction.

When the single-piece component is split up to produce the wedges corresponding to the angular segments, the bridges are more probably broken at the point where their thickness is at its minimum, i.e. at a point which can be controlled by using an appropriate cutting tool to form the radial slots in the component.

As a result, the clamping forces are better distributed on the periphery of the component across the clamping surface within the bridge.

The ledges which the broken bridges leave on the radial faces of the wedges at the edge of the cylindrical bore of the jaw are of a well-determined shape and they can assist in transmitting the forces to the tendon. By thus making use of the entire width of the angular segment, the distribution of forces is also improved (peak pressures are reduced).

Furthermore, these ledges virtually eliminate the problems explained above relating to excessive widening of one of the spaces between wedges.

In one advantageous embodiment, the surface that each bridge

presents towards its respective slot is substantially V-shaped. The inclination of the faces of the V therefore allows the clamping forces to be transmitted across the entire surface of the striations generally present on the wall of the cylindrical bore, which significantly increases the uniformity of the clamping action on each of the wires making up the anchored tendon or strand. The inclination of the faces of the V also enables the wedge segments to be positioned so as to be regularly spaced by the normal radial sliding action of the wedge segment on the parts of the V.

According to another aspect, the invention proposes a method of manufacturing a cable anchoring jaw formed of an assembly of a number N of wedges, comprising the steps of:

- forming a bore of a generally cylindrical shape in a single-piece component;
- performing N cuts in the single-piece component from its periphery along radial planes to form N radial slots delimiting N angular segments of the component, at least N–1 of the cuts being interrupted before reaching the bore in order to leave bridges joining the segments at the bottom of the corresponding slots;
- subjecting the component thus obtained to a hardening treatment; and
- forcing apart the N sectors in order to break the bridges, each wedge of the jaw being obtained from one of the segments.

The interrupted cuts are performed so as to impart to each bridge a surface, directed towards the corresponding slot, of which at least part is inclined relative to the direction perpendicular to the radial plane of said slot so that said bridge breaks at a determined position along said direction.

Other features and advantages of the invention will become clear from the description of examples below, which are not restrictive, and with reference to the appended drawings, in which:

- figure 1, discussed above, is an end view of a single-piece blank for an anchoring jaw of the type disclosed in French patent 2 586 076;
- figure 2 is a perspective diagram showing a single-piece blank for an anchoring jaw made according to the invention;
- figure 3 is an end view of a single-piece blank for a jaw of the type illustrated in figure 2.

Figure 2 illustrates the shape of an anchoring jaw 10 according to the invention, used to clamp a cable tendon 8 such as, e.g., a pre-stressing or stay

cable strand. This exemplary jaw 10 has a generally frusto-conical shape with a central cylindrical bore 5, through which the strand 8 will be inserted, the internal wall of the bore having transverse striations 11 to provide a tight grip on the strand. This frusto-conical shape is divided into three angular segments of 120 degrees, formed by three identical wedges 12. These wedges 12 are assembled by means of an ring 13 located in a circumferential groove 14 close to the widest end of the jaw.

This jaw 10 engages a matching frusto-conical orifice 15 provided in an anchoring block 16. The procedure for anchoring a strand is as follows: the strand 8 is threaded through the orifice 15; the jaw 10 is placed around this strand; traction is applied to the strand at the part projecting beyond the external face 17 of the anchoring block 16, with the aid of a jack for example; and the jaw 10 around the strand is driven into the frusto-conical orifice 15. Once the traction force is released, the jaw 10 firmly clamps the strand 8 in the block 16.

As illustrated in figure 2, the strand 8 may consist of seven stranded metal wires.

The starting point for making a jaw 10 of this type is a single-piece component, known per se, delimited externally by a frusto-conical surface. An axial cylindrical bore 5 is formed through this frusto-conical component. Figure 3 illustrates such a component 20.

The internal surface of the bore 5 is transversely striated, for example with a helical thread having a triangular profile, produced by tapping, which will produce the striations 11 on the internal faces of the wedges 12. The annular groove 14, not visible in figure 3, is machined into the frusto-conical face of the component 20 in the vicinity of its wide base.

The component 20 in question is advantageously made from low-carbon steel which is easy to machine but can be superficially hardened by a heat treatment such as cementation.

It is in this component 20 that radial slots 25 are cut, extending along planes passing through the axis of the component and delimiting the angular segments 22 that will form the wedges 12 of the jaw.

In the illustrated embodiment, the number N of slots 25 is three and they are spaced at angles of 120° around the axis of the bore. The thickness of these slots, determined by that of the cutting tool 30 used to make them, is 1.5 mm, for example. The slots 25 do not extend through the material of the

component 20 up to the bore 5; each of them is interrupted so as to leave behind a bridge 27 along the bore 5.

As illustrated in figure 3, the base of each slot 25 is V-shaped, the apex pointing towards the axis of the component 20, i.e. towards the bore 5. In order to do this, the cutting tool used, which might be a mill or a circular saw 30, has teeth 31 on its cutting edge with a substantially V-shaped profile perpendicular to the cutting plane, i.e. teeth 31 whose pointed shape matches the V shape desired at the bottom of the slot 25.

The V shape at the bottom of the slot 25 makes it possible to control the point at which the bridge 27 will break when the wedges 12 are broken off. The bridge 27 will break by preference on a level with the apex of the V, i.e. approximately at the centre of the thickness of the slot 25.

In another embodiment, the bottom of the slot 25 might be of a flared shape other than a V profile. What matters is that this shape should be such that at least part of the surface of the bridge directed towards the slot is inclined relative to the direction X perpendicular to the radial plane of said slot so that the radial thickness of the bridge is at a minimum at a determined position along this direction X. It is on a level with this minimum that the rupture will occur. The advantage of using a V shape is that it is easy to achieve.

By way of example, the thickness of the bridge, as measured between the apex of the V and the wall of the bore 5, might be between 0.8 mm (at the bottom of the striations 11) and 1.3 mm (at the top of the striations 11), the angle α between the two inclined faces of the V being 90°, for example.

It should be pointed out that in spite of the very fine thickness and the shape of the slot 25, it is relatively easy to control the sawing process because the three slots can be made simultaneously using three fine tools, the respective dimensions and positions of which will be strictly determined, and between which the part 20 will be axially forced.

Cut in this way, the jaw blank remains in a single piece and may be stored in bulk with other similar pieces.

The forces exerted on the bridges 27 at this stage are indeed much lower than those that would be needed to rupture them. The bridges have not been made brittle due to cementation at this stage and their function is essentially to conserve a link between the segments 22 corresponding to the wedges 12.

The single-piece components 20, not split into separate wedges as yet,

will then be taken one by one to dispose the assembling ring 13 in each groove 14, this ring generally being made from spring steel.

The assembled unit is then subjected to the cementation treatment which provides the superficial hardening of the wedges 12 and the bridges 27.

This treatment may be a heating at a temperature of between 900 and 1000°C for three quarters of an hour in a carbide atmosphere, the heating being followed by a quenching.

Treated in this manner, the steel then becomes superficially very hard and the bridges 27 become relatively brittle and easily broken.

At this stage, a hand pressure may be sufficient to break the bridges 27. Otherwise, a separator member is disposed at the opening of the bore 5 and the bridges are broken by hammering this member. The wedges 12 of the jaw are then separated from one another, remaining attached by the assembling ring 13.

As illustrated in figure 2, the broken bridges leave ledges 28 with an approximately triangular section on the radial faces of each wedge. These ledges 28 are adjacent to the bore 5 in which the jaw clamps the strand 8. They therefore assist in transmitting the clamping forces to the tendon, preventing the clamping force on the strand from being reduced over an excessive distance between the wedges. Correlatively, the peak pressures exerted on the strand are reduced.

The ledges 28 also prevent that, during the anchoring process, some of the inter-wedge spaces tend to shrink while another space widens.

A certain number of modifications may be made to the embodiment described here without departing from the scope of the invention, for example:

- the number N of wedges may be other than three;
- the periphery of the jaw might not be of a single frusto-conical shape; instead, it could be made up of several successive frusto-conical sections; it could also be curved;
- one of the N cuts made in the component 20 might be a complete cut, the component remaining a single piece with only N–1 bridges;
- the sequence in which certain steps of the method used to manufacture the jaw are performed might be varied.

CLAIMS

1. A single-piece component (20) for making a cable anchoring jaw (10), comprising several angular segments (22) disposed around a bore (5) having a generally cylindrical shape, joined by bridges (27) adjacent to said bore, each bridge being located at the bottom of a respective radial slot (25) extending between two segments from the periphery of the component, characterised in that each bridge presents, towards its respective slot, a surface having at least a portion inclined relative to the direction (X) perpendicular to the radial plane of said slot so that the radial thickness of said bridge (27) is at a minimum at a determined position along said direction (X).

2. A single-piece component as claimed in claim 1, wherein the surface that each bridge (27) presents towards its respective slot (25) is substantially V-shaped.

3. A method of manufacturing a cable anchoring jaw (10) formed of an assembly of a number N of wedges (12), comprising the steps of:

- forming a bore (5) of a generally cylindrical shape in a single-piece component;
- performing N cuts in the single-piece component from its periphery along radial planes to form N radial slots (25) delimiting N angular segments (22) of the component, at least N–1 of the cuts being interrupted before reaching the bore (5) in order to leave bridges (27) joining the segments at the bottom of the corresponding slots;
- subjecting the component (20) thus obtained to a hardening treatment; and
- forcing apart the N sectors in order to break the bridges, each wedge (12) of the jaw being obtained from one of the segments (22),

characterised in that said interrupted cuts are performed so as to impart to each bridge (27) a surface, directed towards the corresponding slot, of which at least part is inclined relative to the direction (X) perpendicular to the radial plane of said slot so that said bridge breaks at a determined position along said direction (X).

4. A method as claimed in claim 3, wherein said N–1 cuts are made by means of one or more tools (30) having teeth (31) with a substantially V-shaped profile perpendicular to the cutting plane.

5. A method as claimed in claim 3 or 4, further comprising the step of tapping the generally cylindrical bore (5) to form transverse striations (11) on an internal face of each wedge (12).

6. A method as claimed in any one of claims 3 to 5, further comprising the steps of forming an annular groove (14) on the periphery of the single-piece component (20) and placing an assembling ring (13) in said groove prior to the hardening treatment.

7. A cable anchoring jaw (10) formed by assembling several wedges (12) obtained by a method as claimed in any one of claims 3 to 6.

FIG.1.

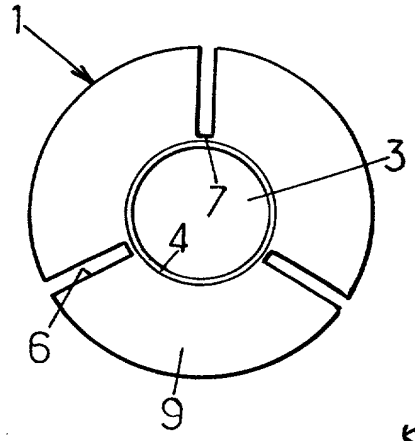
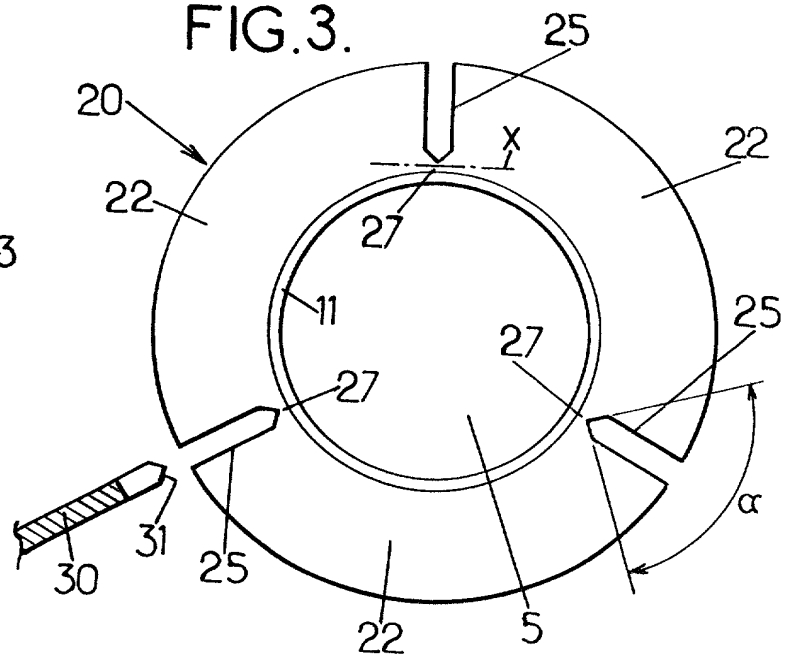


FIG.3.



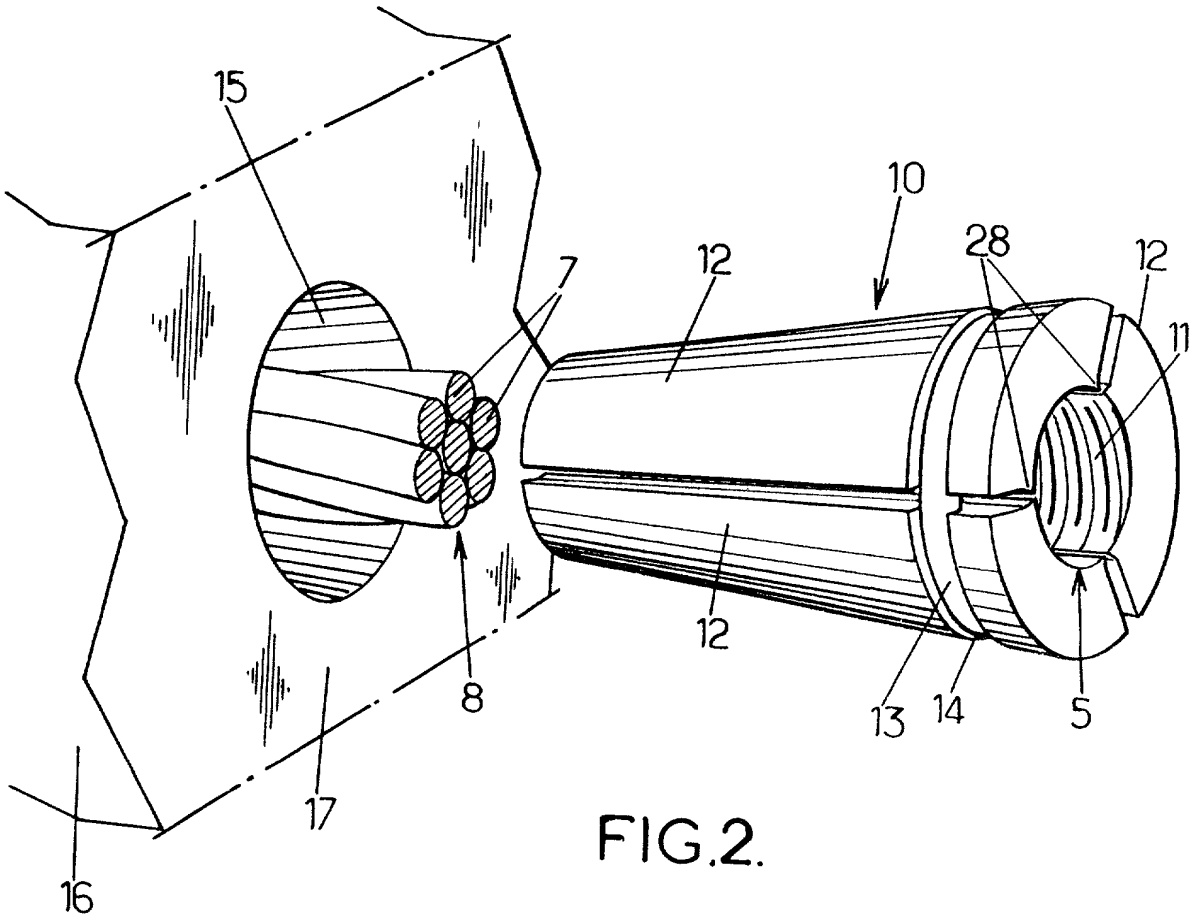


FIG.2.

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my/our name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled SINGLE-PIECE COMPONENT FOR MAKING A CABLE ANCHORING JAW AND MANUFACTURING OF SUCH A JAW, the specification of which

(check one)

_X_ is attached hereto.

____ was filed on _____ as

Application Serial No. _____

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under title 35, United States Code 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s).

			Priority Claimed
99 09664	FRANCE	28th July 1998	Yes XXXXX
(Number)	(Country)	(Day/Month/Year Filed)	
			Yes No
(Number)	(Country)	(Day/Month/Year Filed)	
			Yes No
(Number)	(Country)	(Day/Month/Year Filed)	

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

FR99/01830	26th July 1999	PENDING
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER	FILING DATE
_____	_____
_____	_____
_____	_____

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Date

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